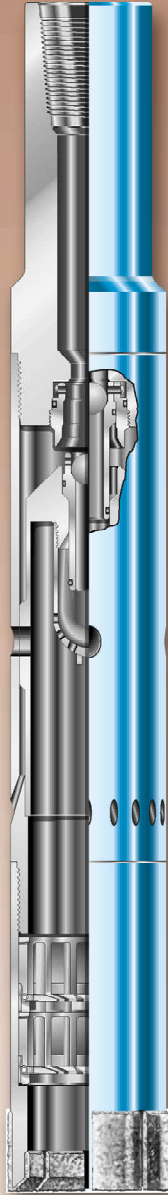


FULL FLOW TYPE REVERSE CIRCULATION JUNK BASKET

Instruction Manual 3105



Full Flow Type Reverse Circulation Junk Basket



Full Flow Type Reverse Circulation Junk Basket

INDEX

Full Flow Type Reverse Circulation Junk Basket	
General Description	3
Use	3
Construction	3
Explanation of Mechanism	4
Accessories	4
Operation	4
Maintenance	6
Magnet Insert Assembly	6
Specifications and Replacement Parts	7 – 8
Rock Bit Cone Dimensions	9

The designs and specifications for the tools described in this instruction manual were in effect at the time this manual was approved for printing. National Oilwell Varco, whose policy is one of continuous improvement, reserves the right to discontinue models at any time, or to change designs and specifications without notice or without incurring obligation.

Fifth Printing, September 2005

General Description

Bowen Full Flow Type Reverse Circulation Junk Baskets are designed to effectively catch junk by utilizing the reverse circulation principle. Small junk objects may be successfully deflected into this Junk Basket and retrieved, which would not be fished out by other junk baskets.

The tool's unique reverse circulation feature insures complete recovery of junk, and eliminates misruns. Its design also retains a drain through the tool that eliminates the possibility of pulling a wet string even though the inner barrel is plugged by the core. This tool may also be converted into an effective Fishing Magnet which still retains the reverse circulation feature.

Use

Bowen Full Flow Type Reverse Circulation Junk Baskets are used to retrieve all types of junk that accumulates at the bottom of a well. This junk may be such objects as rock bit cones and bearings, broken slips, bits of wireline, various hand tools, slivers and debris from twisted-off drill strings, milling cuttings, etc.

In operation the circulating fluid is jetted outwardly and downwardly against the full circumference of the hole, where it is deflected in a manner that directs all objects into the long hollow barrel of the basket.

Construction

Bowen Full Flow Type Reverse Circulation Junk Baskets consist basically of a Barrel, a Top Sub, Junk Catcher(s), a Shoe, a Filter, a Valve Assembly and a Pick Up Sub. The Valve Assembly consists of a Ball, a Ball Seat, a Ball Seat Retainer, four Shear Pins, and Seals.

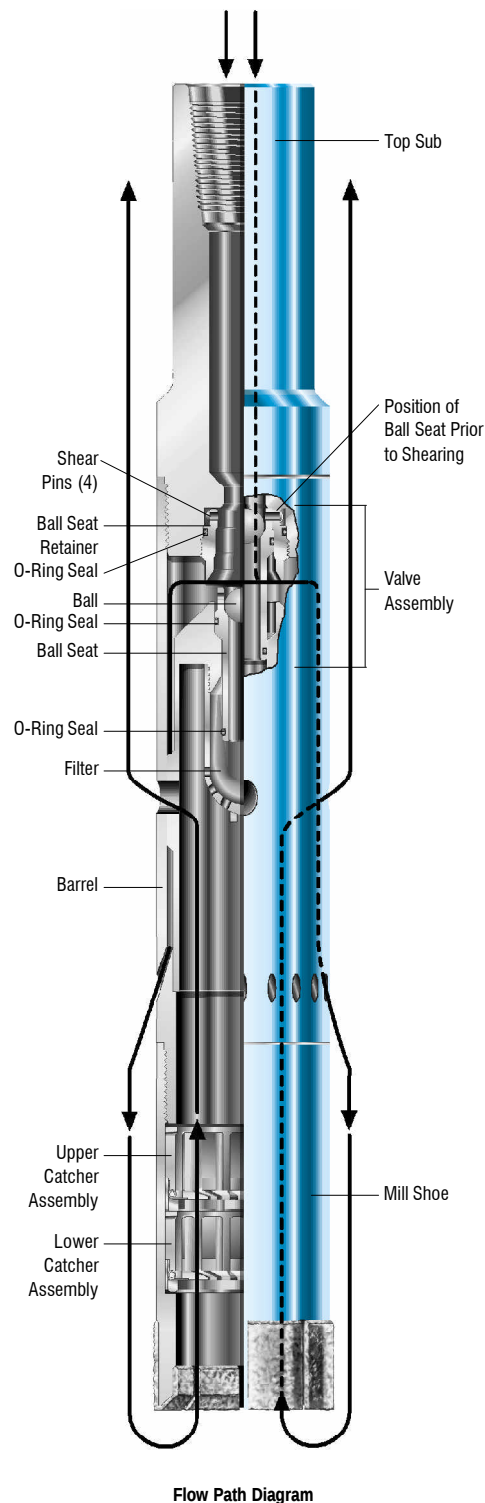
These Junk Baskets are available with one (1) Junk Catcher Assembly or they can be provided with two (2) on request.

Explanation of Mechanism

Bowen Full Flow Type Reverse Circulation Junk Baskets are designed to retrieve all types of small objects such as bit cones, tong pins, hammers, mill cuttings, and similar junk. Its unique principle of reverse fluid circulation insures more complete recovery of junk in the hole and eliminates misruns.

Full Flow Type Valve Assembly

The Full Flow Type reverse circulation is obtained the same way as the Standard Type. The unique feature of the Full Flow Type is in the Valve Assembly. Sometimes when the Standard Type is being lowered into the well toward a fish, pieces of shale, shell, etc., break away from the walls, sift up through the catchers, and clog the valve which starts the reverse flow action prematurely when it is not desirable. The Full Flow is designed to seal off the cavity used in the reverse circulation until it is needed. When dressed for running in the hole, the Ball Seat of the Full Flow type is fastened to the Ball Seat Retainer with Shear Pins. This blocks off the reverse circulation ports and provides a "wash-pipe" between the Top Sub and Barrel so that flow will be directed through the I.D. to keep the Barrel washed clean while going in the hole. When the Basket is over the fish, the ball is dropped and seated, pump pressure causes the pins to shear, the Ball Seat drops down to a matching beveled shoulder of the Valve Assembly part of the barrel which opens the cavity, and reverse circulation starts. (See illustration)



Accessories

Mill Shoes

Bowen Full Flow Type Reverse Circulation Junk Baskets are furnished with a standard Type "A" Mill Shoe. This is a mill type with side wings. It is recommended that Itcoloy-faced Mill Shoes can be considered.

The Type "B" Mill Shoe is similar in design to the Type "A" but is hard-faced with Bowen Itcoloy. Itcoloy is a material composed of sintered tungsten carbide in an extremely tough matrix which will effectively and rapidly mill up junk during the fishing operation.

The Type "C" Mill Shoe is a flat-bottomed shoe which is hard-faced with Itcoloy on the bottom, on the inner face and on the outer face. It will effectively mill up junk and is especially effective for cutting cores.

Finger Shoes

When junk is lying loose on the bottom of the well or when junk is too large to pass through the Catchers, a Finger Shoe may be installed on the bottom of the Barrel in place of the Mill Shoe. When the Junk Basket engages the fish, combined rotating and lowering causes the long fingers to close in beneath the fish and retain it in the Barrel. Finger Replacements are easy and inexpensive to replace on the Shoe Body.

Magnet Inserts

Magnet Inserts are available to convert Bowen Full Flow Type Reverse Circulation Junk Baskets into effective fishing magnets. The Magnet Insert is machined to fit into the recess normally occupied by the Catcher. The Magnet Insert is used especially when in hard-to-drill formations and to thoroughly clean the hole prior to diamond drilling. This arrangement provides a magnet that incorporates the advantages of reverse circulation.

Operation

First, determine that the Junk Basket is properly assembled and that all its parts are in good working condition.

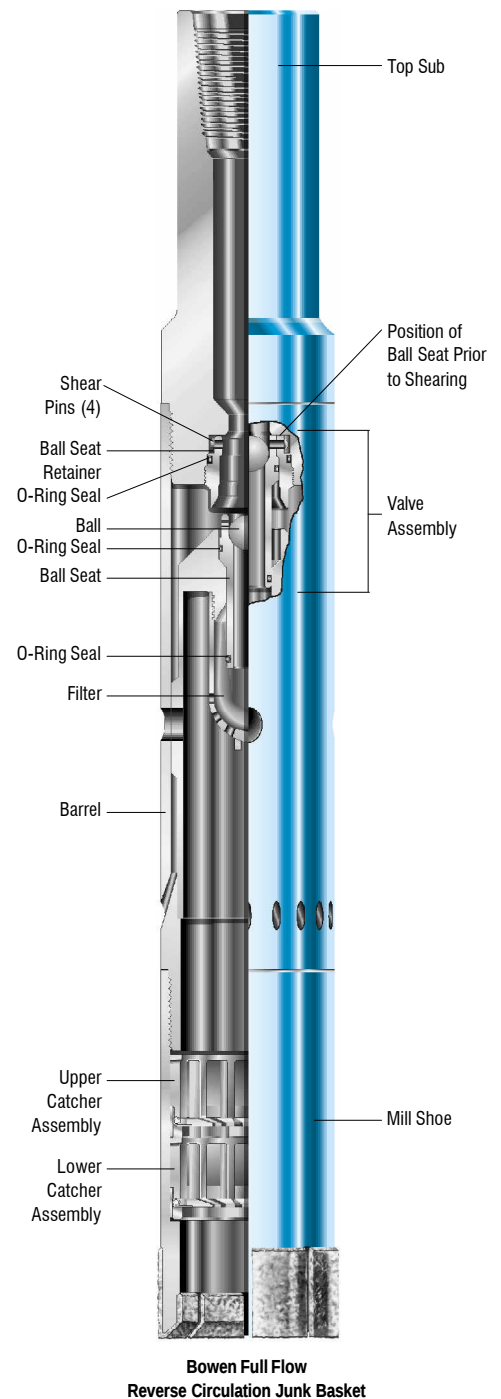
Examine the tool and make sure it is properly assembled and in good working condition. Look inside the Top Sub to see if the Ball Seat is positioned properly in the Ball Seat Retainer with the Shear Pins in place. For Shoe selection and operation, follow the same instructions described under "Selection of Shoes."

1. Make up the Junk Basket to the fishing string, lower into well, and turn on the circulation pumps. When the tool is a few feet off bottom, stop lowering and turn off the pumps.
2. Unscrew the Kelly from the string. Drop the Steel Ball down the drill pipe. Reconnect the Kelly. (Where a Window Sub is available, remove the plug from the sub and drop the Steel Ball down the drill pipe. Replace the plug in the Window Sub.)
3. Turn the circulation pumps back on and watch the mud pressure gage. When the Ball reaches the Ball Seat, a slight pressure build up will occur. When the Pins shear a sudden drop in pressure will be noticed on the gage and this will indicate that reverse circulation is taking place.
4. Maintain high pressure circulation, rotate the string slowly to the right and lower the Junk Basket to the bottom of the hole.

When coring, continue right-hand rotation and lowering until a core at least ten inches long has been cut.

NOTE: When using the Itcoloy-faced Shoes, maintain one ton of weight on the shoe and rotate the basket to give a surface speed of 250 ft/min to insure proper milling.

5. Stop rotation and circulation and pull the Junk Basket from the hole.



Selection of Shoe

If the fish is embedded in a hard formation and a core must be cut, the Junk Basket must be equipped with the proper Mill Type Shoe.

If the fish is laying loosely on the bottom of the hole, the Junk Basket may be equipped with either the proper Mill Type Shoe or the proper Finger Type Shoe.

Finger Type Shoes will normally retrieve larger objects than Mill Type Shoes, provided the junk is lying loose on the bottom and a core need not be taken.

Itcoloy-faced Shoes, with their hard, rugged and long lasting qualities, make possible the cutting away of protruding excess metal to allow free entry of the junk into the basket and the retention of the junk on the one run.

Remove the Lifting Sub and retain it and the Steel Ball at the derrick floor.

Using the Top Sub, connect the Junk Basket to the string and run it in the hole. If small junk particles are very prevalent in the hole, a Junk Sub should be installed above the Junk Basket.

Where a Window Sub is available, install on the top joint of drill pipe and connect the Kelly.

Operation of Junk Basket in Recovering Fish with Mill Type Shoe

1. Turn on the circulation pumps and force circulation through the Junk Basket for a few minutes before dropping the Steel Ball. This flushes out any mud that may have gathered in the Barrel during the run in.
2. After the Steel Ball has been dropped down the drilling pipe, its downward progress will not be halted until it encounters the Valve Seat in the Junk Basket. Thereafter, when circulation is resumed, the



Type A Mill Shoe



Type B Mill Shoe



Type C Mill Shoe



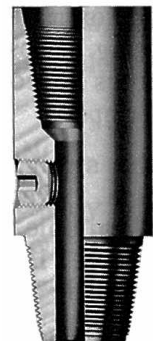
Finger Shoe



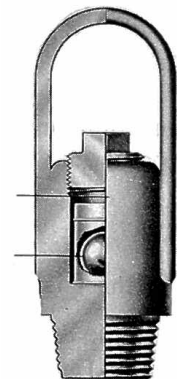
Magnet Insert



Standard Catcher



Window Sub



Lifting Sub

fluid is forced through the inner passages of the Barrel and jetted outwardly and downwardly against the full circumference of the hole, where it is deflected in a manner that flushes all objects toward center. The fluid then flows in a continuous stream to the center of the Junk Basket and up through it and out the return ports in the upper end of the Barrel, thus giving a reverse circulation action.

3. Cut a length of core so that the fish rides past the Junk Catcher. The fingers on the Junk Catcher fold back while the core and fish are entering.
4. Pull up the Junk Basket so that the fingers in the Junk Catcher dig in and cut off a section of core. This holds the fish and core securely in the Junk Basket Barrel.

To Recover Fish when Basket is Equipped with Finger Type Shoe

When the Junk Basket is approximately ten feet off bottom, turn on the circulating pumps and maintain circulation for a few minutes to condition the mud. Turn off the circulating pumps.

Unscrew the Kelly from the string. Drop the Steel Ball down the drill pipe. Reconnect the Kelly. (Where a Window Sub is available, remove the plug from the sub and drop the Steel Ball down the drill pipe. Replace the plug in the Window Sub.)

Turn on the circulating pumps and while maintaining high pressure circulation, rotate the string slowly to the right and lower it until approximately two tons of weight rest against the bottom of the hole.

Stop rotation and circulation and pull the Junk Basket from the hole.

To Remove the Fish or Core

Unscrew the Mill Type Shoe or the Finger Type Shoe from the Junk Basket and wash out the Barrel.

NOTE: The Junk Basket should be washed as soon as possible after being used. Pay particular attention to the space between the inner and outer barrels.

Precautions

Make sure that the inside diameters of the tool joints in the string are large enough to pass the Steel Ball.

Be sure to retain the Steel Ball at the surface while the Junk Basket is being lowered into the hole.

Maintenance

To guard against misruns and to prolong the life of the tool, dismantle and thoroughly cleanse the Junk Basket after each job.

Disassembly

1. Unscrew the Top Sub.
2. Using pipe wrench on diameter of Ball Seat Retainer protruding from bottom of Top Sub, unscrew and remove the Retainer. Knock out old pieces of Shear Pins from top of Retainer.
3. Remove the Steel Ball and Ball Seat.
4. (a) Unscrew the Mill Type Shoe.
(b) Remove the Junk Catcher from the Shoe.
5. Finger Type Shoe:
 - (a) Unscrew the Finger Type Shoe from the Barrel.
 - (b) Unscrew the Finger Type Shoe Replacement from the Finger Type Shoe Body.

6. Using T-wrench provided, reach inside bottom of Barrel and unscrew Filter. Remove the Filter and clean out any debris which may be lodged in the holes of the Filter.
7. Wash out both the inside and the inner passages in the Barrel.
8. Check all parts carefully. Replace damaged parts with new ones.
9. Reassemble in the reverse order.
10. Before installing Ball Seat Retainer in Top Sub, replace o-ring Seals on Retainer and Ball Seat with new ones. Insert Ball Seat into and against matching beveled shoulder of Ball Seat Retainer and install new Shear Pins. Screw this assembly into the Top Sub until snug. Heavy torque is not required.
11. Store the Steel Ball in the Lifting Sub.
12. To prevent rust, apply either paint or grease.

Magnet Insert Assembly Installation

1. Remove Shoe from Barrel of the Junk Basket.
2. Remove Catcher from Shoe.
3. Install Magnetic Insert in Catcher recess.
4. Reassemble Junk Basket.

Maintenance

1. Thoroughly clean after use; make sure circulation hole is clean.
2. Store with Keeper in place to preserve magnetism.

Bowen Full Flow Reverse Circulation Junk Basket

Hole Size		4-1/8 – 4-1/2	4-5/8 – 5	6-1/8 – 6-1/2	7-1/2 – 8-1/4	8-3/8 – 9-1/2	9-5/8 – 10-5/8	10-3/4 – 11-5/8	11-3/4 – 12-1/2
O.D. of Barrel		4	4-1/2	5-3/4	7	7-7/8	9-1/8	10-1/8	11
Maximum Diameter of Fish		2-1/2	3-1/16	4-3/8	5-1/8	5-15/16	7-1/16	7-11/16	8-5/16
Top Connection		2-3/8	2-7/8	3-1/2	4-1/2	5-1/2	6-5/8	6-5/8	6-5/8
Number of Teeth on Mill		6	8	8	8	8	10	10	12
Pressure to Shear Pin (psi)		750	750	750	327	327	237	237	237
Complete Assembly	Part No.	71226	70702	71127	70908	70923	71198	71218	70910
	Weight	103	112	195	305	390	460	600	695

Replacement Parts

Top Sub	Part No.	71227	71104	71125	70935	70926	71202	71219	70920
	Weight	28	24	73	112	152	177	201	224
Barrel	Part No.	71230	71116	71115	70911	70924	71203	71220	70921
	Weight	53	56	88	139	170	196	283	329
Ball Seat	Part No.	70699	70851	70851	67354	67354	67168	67168	67168
	Weight	1-3/8	1-1/4	1-1/4	1-5/8	1-5/8	2	2	2
Ball Seat Retainer	Part No.	70850	70850	70850	67353	67353	67167	67167	67167
	Weight	1	1	1	1-1/4	1-1/4	1-3/4	1-3/4	1-3/4
Shear Pin 4 Req'd.	Part No.	70852	70852	70852	67175	67175	67175	67175	67175
	Weight	1/16	1/16	1/16	1/8	1/8	1/8	1/8	1/8
Upper Junk Catcher Assembly*	Part No.	22070-W	22075-W	15130-W	22050-W	21730-W	14632-W	25235-W	31046-W
	Weight	1-1/2	2	4-1/2	5	7	9	11	15
Lower Junk Catcher Assembly*	Part No.	21855-W	21780-W	28349-W	21725-W	18725-W	14633-W	18945-W	21760-W
	Weight	1-1/2	2	4-1/2	7	7-1/2	9	16	20
Filter	Part No.	80768	80768	80768	70731	70731	70764	70764	70764
	Weight	1-3/4	1-3/4	1-3/4	2-1/4	2-1/2	3	3	3
Mill Shoe	Part No.	71228	70909	71124	72070	72081	71199	72080	72071
	Weight	15	20	31	28	36	50	61	78
Steel Ball	Part No.	6640	4453	4453	2572	2572	2665	2665	2665
	Diameter	15/16	1-1/8	1-1/8	1-11/16	1-11/16	2-1/4	2-1/4	2-1/4
	Weight	1/8	1/4	1/4	3/4	3/4	2	2	2
Retainer O-ring	Part No.	27-34	27-34	27-34	30-21	30-21	30-26	30-26	30-26
	Weight	1/32	1/32	1/32	1/16	1/16	1/16	1/16	1/16
Upper Seat O-ring Seal	Part No.	27-28	27-28	27-28	30-9	30-9	30-13	30-13	30-13
	Weight	1/32	1/32	1/32	1/32	1/32	1/32	1/32	1/32
Lower Seat O-ring Seal	Part No.	27-20	27-20	27-20	30-2	30-2	30-7	30-7	30-7
	Weight	1/32	1/32	1/32	1/32	1/32	1/32	1/32	1/32

Optional

Pick Up Sub	Part No.	4568	424	425	1849	426	427	427	427
	Weight	9	12	18	45	55	79	79	79
Finger Type Shoe	Part No.	7300	—	2738	—	2741	2742	2743	—
Consists of:	Weight	20	—	37	—	83	105	135	—
Finger Type Shoe Replacement	Part No.	7300-1	—	2738-1	—	2741-1	2742-1	2743-1	—
	Weight	8	—	22	—	44	52	64	—
Finger Type Shoe Body	Part No.	7300-2	—	2738-2	—	2741-2	2742-2	2743-2	—
	Weight	10	—	14	—	37	50	64	—
Finger Type Collar	Part No.	—	4456-2	—	2740-2	—	—	—	2744-2
	Weight	—	14	—	28	—	—	—	83
Finger Replacement	Part No.	—	4456-1	—	2740-1	—	—	—	2744-1
	Weight	—	10	—	32	—	—	—	71
Pipe Plug	Part No.	61520	61520	61521	61522	61523	61523	61523	61523
	Weight	3/4	3/4	1	1	1-1/4	1-1/4	1-1/4	1-1/4
Magnet Insert Assembly	Part No.	—	61840	61866	61876	61953	61961	62657	61973
	Weight	—	20	48	77	97	174	186	186
T-wrench	Part No.	72067	72067	72067	72069	72069	72068	72068	72068
	Weight	2	2	2	2-1/4	2-1/4	2-1/2	2-1/2	3
Lower Catcher Repair Kit	Part No.	21855-WK	21780-WK	15130-WK	21725-WK	18725-WK	14633-WK	18945-WK	21760-WK
	Weight	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Upper Catcher Repair Kit	Part No.	21855-WK	22075-WK	28349-WK	22050-WK	21640-WK	14632-WK	25235-WK	31046-WK
	Weight	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Valve Repair Kit	Part No.	72064	72062	72063	72058	72061	72065	72059	72060
	Weight	1/4	1/4	1/4	1/4	3/8	3/8	3/8	3/8

How To Order:

Specify:
 (1) Name and Number of Assembly or Part
 (2) O.D. and Type of Shoe
 (3) Top Connection Desired

Recommended Accessories:

(1) 2 Finger Shoes
 (2) 4 Finger Shoe Replacements
 (3) 1 Magnet Insert

Recommended Spare Parts:

(1) 2 Junk Catchers
 (2) 2 Mill Shoes
 (3) 1 Ball Seat
 (4) 1 Ball Seat Retainer
 (5) 1 Steel Ball
 (6) 4 Valve Repair Kits
 (7) 2 Catcher Repair Kits (for Each Assembly)

NOTE: Finger Shoe replacement is furnished with the same O.D. as standard Shoe unless otherwise specified.

*See Catcher Assembly tables for parts breakdown.

Miscellaneous O-ring Seals are normally furnished in sealed plastic bags of 10, 25, or 100 pieces each to prevent deterioration. Other quantities will be furnished in unsealed packages. Packing Sets, however, will always be furnished in sealed plastic bags.

Bowen Junk Basket Catchers (Continued)

Number of Junk Basket it will Fit		71226	70702	71127	70908	70923	71198	71218	70910
Complete Assembly (Upper)	Part No.	22070-W	22075-W	15130-W	22050-W	21730-W	14632-W	25235-W	31046-W
	Weight	1-1/2	2	4-1/2	5	7	9	11	15

Replacement Parts

Body	Part No.	68366	45591	45511	45550	45505	45521	68388	45576
	Weight	1/4	1/2	1	1-1/2	2	3	4	6
Finger Retainer	Part No.	68367	45592	45519	45551	45506	45530	45531	45578
	Weight	1/16	1/8	1/4	3/8	1/2	3/4	1	1-1/4
Short Finger	Part No.	68368	45574	45517	45557	45508	45588	68383	45525
	Weight	1/16	1/16	1/8	3/8	1/4	3/8	1/2	1/2
	No. Req'd.	4	10	12	12	12	12	12	16
Long Finger	Part No.	—	—	—	—	—	—	—	—
	Weight	—	—	—	—	—	—	—	—
	No. Req'd.	—	—	—	—	—	—	—	—
Pivot Pin	Part No.	45583	45583	—	—	—	—	—	—
	Weight	1/32	1/32	—	—	—	—	—	—
	No. Req'd.	8	10	—	—	—	—	—	—
Torsion Spring	Part No.	45571	45571	45520	45520	45509	45549	45509	45509
	Weight	1/32	1/32	1/16	1/16	1/16	1/16	1/8	1/8
	No. Req'd.	8	10	12	12	12	12	12	16
Retainer Screw	Part No.	42257	42257	42257	42257	42257	42257	42257	42257
	Weight	1/32	1/32	1/32	1/32	1/32	1/32	1/32	1/32
	No. Req'd.	2	2	2	2	2	2	2	2

Catchers Continued

Number Of Junk Basket It Will Fit		71226	70702	71127	70908	70923	71198	71218	70910
Complete Assembly (Lower)	Part No.	21855-W	21780-W	28349-W	21725-W	18725-W	14633-W	18945-W	21760-W
	Weight	1-1/2	2	4-1/2	7	7-1/2	9	11	20

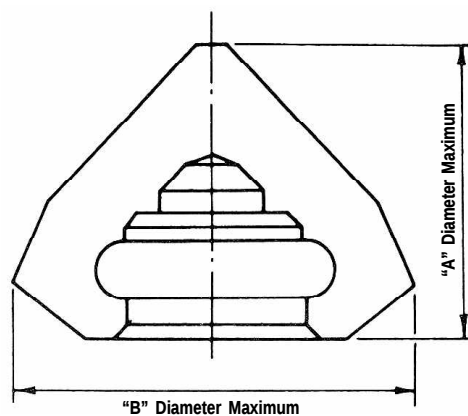
Replacement Parts

Body	Part No.	68366	45591	45511	45550	45505	45521	45522	45576
	Weight	1/4	1/2	1	2-1/2	2-1/2	3	6-1/2	7
Finger Retainer	Part No.	68367	45592	45519	45551	45506	45530	45531	45578
	Weight	1/16	1/8	1/4	1/2	1/2	3/4	1-1/2	1-1/2
Short Finger	Part No.	68368	45574	45517	45557	45508	45588	45507	45525
	Weight	1/16	1/16	1/8	1/4	1/4	3/8	5/8	1/2
	No. Req'd.	4	5	8	6	6	6	6	8
Medium Finger	Part No.	—	—	—	—	—	—	—	45510
	Weight	—	—	—	—	—	—	—	3/4
	No. Req'd.	—	—	—	—	—	—	—	4
Long Finger	Part No.	68369	45575	45516	45518	45507	45589	70277	45526
	Weight	1/8	1/8	1/4	1/4	3/8	1/2	5/8	7/8
	No. Req'd.	4	5	4	6	6	6	6	4
Pivot Pin	Part No.	45583	45583	—	—	—	—	—	—
	Weight	1/32	1/32	—	—	—	—	—	—
	No. Req'd.	8	10	—	—	—	—	—	—
Torsion Spring	Part No.	45571	45571	45520	45520	45509	45549	45509	45509
	Weight	1/32	1/32	1/16	1/16	1/16	1/16	1/16	1/16
	No. Req'd.	8	10	12	12	12	12	12	16
Retainer Screw	Part No.	42257	42257	42257	42257	42257	42257	42257	42257
	Weight	1/32	1/32	1/32	1/32	1/32	1/32	1/32	1/32
	No. Req'd.	2	2	2	2	2	2	2	2

Rock Bit Cone Dimensions

The cone sizes shown are the nominal hughes tool company "cone dimensions" and are the maximum for the size indicated in the middle column. They maybe used as a guide in junk fishing operations.

2 CONE BITS		SIZE	3 CONE BITS	
A	B		A	B
		3-3/4 - 4-1/8	1-31/32	2-45/64
		4-1/4 - 4-1/2	2-13/64	2-59/64
		4-5/8 - 5	2-11/32	3-13/64
		5-1/8 - 5-1/2	2-41/64	3-17/64
		5-5/8 - 6	3-1/8	4-1/64
		6-1/8 - 6-1/2	3-6/64	4-3/16
		6-5/8 - 7	3-7/16	4-9/16
		7-1/8 - 7-1/2	3-45/64	4-27/32
3-45/64	5-17/32	7-5/8 - 8	3-31/32	5-17/64
4-11/32	6-7/64	8-1/8 - 8-1/2	4-3/8	5-25/32
4-11/32	6-5/16	8-5/8 - 9	4-17/32	6-1/32
		9-1/8 - 9-1/2	4-9/16	6-13/32
4-7/8	7	9-5/8 - 9-7/8	4-15/16	6-41/64
5-23/64	7-19/32	10-1/2 - 11-1/2	5-27/64	7-5/32
5-63/64	8-27/64	11-3/4 - 12-1/2	6-1/8	7-61/64
		12-5/8 - 13-1/8	6-5/16	8-31/64
		13-1/2 - 14-1/4	7-1/32	8-13/16
		14-1/2 - 15	7-25/64	9-19/32
		16	9-27/32	10-1/8
		17 - 17-1/2	8-13/64	11-11/64
		18-1/2 - 18-7/8	8-25/32	11-23/64
		20	9-1/2	11-7/8
		22	10-15/32	14-1/64
		24	10-15/16	14-9/16
		26	12-19/64	14-31/64



Corporate Headquarters

10000 Richmond Avenue
Houston, Texas 77042
United States
Phone: 713 346 7500
Fax: 713 346 7959

Alaska

4111 Ingra
Anchorage, Alaska 99503
United States
Phone: 907 563 5253
Fax: 907 561 0071

California

4117 Atlas Court
Bakersfield, California 99308
United States
Phone: 661 395 0165
Fax: 661 328 1827

Louisiana

108 Nova Drive
Broussard, Louisiana 70518
United States
Phone: 337 839 2400
Fax: 337 839 2211

190 Thompson Road
Houma, Louisiana 70363
United States
Phone: 985 851 1111
Fax: 985 851 1117

Mississippi

2930 Industrial Blvd.
Laurel, Mississippi 39440
United States
Phone: 601 649 8671
Fax: 601 649 8673

New Mexico

#14 CR 5860
Farmington, New Mexico 87401
United States
Phone: 505 326 4303
Fax: 505 326 4304

North Dakota

3202 1st Avenue West
Williston, North Dakota 58801
United States
Phone: 701 774 0091
Fax: 701 774 0092

Oklahoma

3800 Thomas Road
Oklahoma City, Oklahoma 73179
United States
Phone: 405 677 2484
Toll Free: 877 760 1711
Fax: 405 677 2457

Texas

1249 Commerce Road
Alice, Texas 78332
United States
Phone: 361 664 8013
Fax: 361 664 0462

8411 Irvington Boulevard*
Houston, Texas 77022
United States
Phone: 713 691 7800
Fax: 713 691 7807

2810 Highway 135 North
Kilgore, Texas 75662
United States
Phone: 903 984 2553
Fax: 903 984 7170

10720 West I-20 East
Odessa, Texas 79765
United States
Phone: 432 563 1173
Fax: 432 563 1182

30444 Southwest Freeway
Rosenberg, Texas 77471
United States
Phone: 281 341 5365
Fax: 281 344 1986

Utah

1553 East Highway 40
Vernal, Utah 84078
United States
Phone: 435 789 0670
Fax: 435 789 6568

West Virginia

Route 2, Murphy Run Road
Clarksburg, West Virginia 26301
United States
Phone: 304 622 4303
Fax: 304 623 2174

Wyoming

1283 N. Derrick Drive
Unit 1, Box 2
Casper, Wyoming 82604
United States
Phone: 307 237 3100
Fax: 307 237 2546

Canada

9120 – 34A Avenue
Edmonton, Alberta T6E 5P4
Canada
Phone: 780 702 5209
Fax: 780 463 2348

3550 93 Street*
Edmonton, Alberta T6E 5N3
Canada
Phone: 780 944 3929
Fax: 780 430 0760

1100 540 5th Avenue SW (Mailing)
1010 540 5th Avenue SW (Office)
Calgary, Alberta T2P 0M2
Canada
Phone: 403 250 8000
Fax: 403 294 5790

England

2 Isbourne Way
Winchcombe
Cheltenham
Glos, GL54 5NS
England
Phone: 44 (0) 1242 603975
Fax: 44(0) 1242 602614

Dubai

Nr. R/A 13, Daimler Chrysler Street
P.O. Box 61490
Jebel Ali Free Zone
Dubai
UAE
Phone: 971 4 8838776
Fax: 971 4 8838795

Indonesia

Cilandak Commercial Estate Unit 105
Jl. Raya Cilandak KKO
P.O. Box 7541
Jakarta, 12560
Indonesia
Phone: 62 21 782 6088
Fax: 62 21 782 6086

Scotland

10 Kirkton Avenue
Pitmedden Road Industrial Estate
Dyce, Aberdeen AB21 0BF
Scotland
Phone: 441 224 334800
Fax: 441 224 723034

Singapore

9 Tuas Avenue 5
Singapore, 639335
Singapore
Phone: 65 68611566
Fax: 65 68610728

Germany

Edesser Straße 1
31234 Edemissen Berkhöpen
Postfach 31232
Germany
Phone: 49 5176 97670
Fax: 49 5176 9767 22

* Denotes Manufacturing and Engineering facilities

Downhole Solutions

Drilling Solutions

Engineering and Project Management Solutions

Lifting and Handling Solutions

Production Solutions

Supply Chain Solutions

Tubular and Corrosion Control Solutions

Well Service and Completion Solutions